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ABSTRACT

These activities and activity ideas are designed to reinforce energy concepts when only short periods of time are available. They require little teacher preparation, and take only a few minutes to complete. Some activities can be extended for longer periods of time. The activities have been separated into the following general categories: (1) drawing and verbal communication; (2) research and written communication; (3) energy experiments; and (4) energy games. The activities in category (1) and (2) may serve as ideas for small groups or the entire classroom. Some of these ideas lend themselves well to independent learning centers. The energy-related experiments also lend themselves to learning centers, or may be used as extension activities with the entire class. The energy games are mostly pencil-and-paper activities. Answers to the activities are provided at the end of each section. (CW)

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ED300244

QUICK ENERGY

FOR ELEMENTARY TEACHERS

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TO THE TEACHER

Quick Energy Activities and activity ideas are designed to reinforce energy concepts when only short periods of time are available. They can be thought of as "sponge" activities since the idea behind their creation was to provide activities which required little teacher preparation, and take only a few minutes to complete. Of course, there are exceptions and some activities can be extended for longer periods of time.

The Quick Energy activities have been separated into the following general categories:

I. Drawing/verbal communication activity ideas. Page 3
II. Research/written communication activity ideas. Page 7
III. Energy experiments. Page 11
IV. Energy Games. Page 19

The ideas in sections I and II are just that—ideas. They may serve as ideas for small groups or the entire classroom. Some of these ideas lend themselves well to independent learning centers.

The activities in section III deal with energy-related experiments which also lend themselves to learning centers, or may be used as extension activities, or with the entire class. Teachers will need to collect the materials for these experiments ahead of time as well as duplicate the necessary pages for each individual.

The activities in section IV are energy games. These energy games are mostly pencil-paper activities which need to be duplicated for each individual.

In an attempt to encourage conservation, please ask students to use recycled (scrap) paper whenever possible.

Answers to the activities are provided at the end of each section.

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Section I

Drawing / Verbal Communication Activity Ideas

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DRAWING/VERBAL COMMUNICATION ACTIVITY IDEAS

** Indicates a non-reader activity*

* 1. Energy is work. Draw a picture of yourself using energy.

* 2. Where does your energy come from? Draw a picture.

* 3. Draw two ways you can save energy. (Use scrap paper for this activity).

* 4. Who has seen the wind? Wind is a source of energy. Draw a picture of a windy day. Will things look like they are moving in your picture?

* 5. Classify objects in the classroom according to whether they are natural, man-made, or a combination. How many of these objects contain something made from oil? (Anything with plastic came from oil.)

* 6. What would happen if suddenly there was no gasoline to run our cars? Design a car that will run without gas. Explain how it works. Or, design an alternative way to get around.

* 7. Make a puppet using a paper bag or a sock or any material you can find. Your puppet must be an energy saver or energy user. Be able to explain which one. Choose a friend. Together make up a short play about energy and present it, using the puppets.

* 8. In ten minutes draw pictures or make a list of everything in your kitchen that uses electrical energy. Put a 1 by the appliances that you use most, etc. When finished, your biggest number should be the appliance that you use least.

* 9. Using catalogues or magazines, make a collage for things that use electrical, gas and mechanical energy. Cut out one day, paste another day, and present on another day.

* 10. Create or draw a design of a machine that could do a job you don't like to do. Justify your reasons for making what you do. Make sure that the machine does not waste energy.

* 11. Collect litter on the school grounds. Sort litter into categories. Design a graph that shows the quantity of each category of litter. Make a collage using the litter.

* 12. Design a car of the future. Make sure that it gets good gas mileage (if it uses gas). Explain to us why we should purchase your creation. Can you make a commercial and then sell your car to us?

* 13. Design a house that doesn't use gas or electricity. Be sure to tell us how you will heat it, light it, etc., or anything else you want to do with it. Design an advertising brochure that will sell it to us.

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DRAWING/VERBAL COMMUNICATIONS ACTIVITY IDEAS

*14. Show how body energy can be transferred to do work. Create a picture of what steps your body must go through to walk, push a pencil, eat, get in and out of a car and any others you can think of. Analyze your body movements. Think! You can also write sentences about it.

*15. You are going on a trip to space. You can take one item along with you that you now have. Explain what you would take and why. Defend your choice.

*16. Interview your custodian — have him take you through the furnace room and show you the things that happen to the heat energy before it gets to your room. Report to the class.

*17. Brainstorm a list of things that you think are made from oil (i.e., styrofoam, plastic, plastic records, lipstick, vasoline, lighter fluid, etc.). Invent a system to prove your answers.

Tell how you could recycle items above that are made from oil. Try your method at your home. Report on the results.

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Section II

Research / Written Communication Activity Ideas

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RESEARCH/WRITTEN COMMUNICATION ACTIVITY IDEAS

** Indicates a non-reader activity*

*1. Make a list of things **you** can do at home to help save energy. Try to think of at least seven.

*2. List some reasons why we need the sun. What would happen if we did not have the sun?

*3. Think about these rooms in your house: the kitchen, your bedroom, the bathroom, the living room. Divide a piece of paper into four sections and list the things in each room that use energy.

Which room had the most energy users? Which room had the least energy users? Classify the energy users according to the source of energy they use or what the energy users do (i.e. heat, provide light, etc.).

*4. Count the steps, from your desk, to a specific location in the building, via different routes. Which way is closest and therefore, more energy efficient?

*5. Write a solar recipe. Choose a food and tell how you would prepare it using solar energy. Try it out to determine if your method works.

*6. Draw a picture of an energy monster. Write a short story or poem to go with your picture. Bring a box or container from home to build the monster.

*7. Make a list, draw illustrations or cut pictures from magazines, of toys that use energy. Be sure to include what type of energy is used in each toy. Categorize toys according to the energy they use (i.e., mechanical, battery, electricity, etc.).

Make a toy that uses mechanical energy.

Develop a contest with the toys the students make or bring from home. Which toy works longest with the least amount of energy used, etc.?

*8. Develop a classroom energy calendar that involves each student's input. Activities could be developed for each day of the month, or for one day a week. Ideas could include:

MONDAY	TUESDAY	WEDNESDAY
Count the number of light bulbs on in your house at 7:00 p.m.	Brush your teeth using only ½ cup of water.	How many individual car trips did your family take today? How could the number be reduced?

*9. Write a story or poem about the following situation. When you woke up this morning, there wasn't any electricity. What would you do, and why?

*10. List all of the things that you own which use energy. List them in a column. In a second column, list the type of energy they use. For example, batteries, house electric current, wind-up spring and so on.

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RESEARCH/WRITTEN COMMUNICATIONS ACTIVITY IDEAS

11. Write some energy Haiku. Remember the 5-7-5 pattern. Example:

    OIL
    Deep within the earth.
    Increased daily usage now.
    Awareness . . . long life?

12. Each day hundreds of thousands of people use freeways to go to work. A. List three ways freeways affect the environment around their paths through cities. B. List three energy resources the commuters use as they go to work. C. List three things the commuters might do to conserve valuable resources.

13. Go to the media center. Who invented the oil rig? Who invented the steam engine? Who invented the gasoline combustion engine? Share this information with your class.

14. Use the thesaurus, dictionary, or Energy Glossary to look up these energy words and use each word in a sentence. 1) zooplankton 2) work 3) water pollution 4) temperature 5) thermostat.

15. Make a list of as many energy words as you can. Use the dictionary if you need to. Now alphabetize the energy words.

16. Investigate new energy words. If the media center doesn't have information—where would you go to get help? Send off for information and add it to the media center's vertical file. Some new terms and words might be:

    Acid rain breeder reactor OTEC gasohol

17. If you have an Energy Glossary, play this word game. Select several energy words. Write each word and its definition on a card using one card for each word and definition. Divide the class into small groups, handing each group one card. Each group is to come up with 3 or 4 incorrect definitions for the word they were given. These definitions should sound believable. Each group takes turns telling the other groups what their word is and reading the variety of definitions. Other groups vote on the correct definition. Object is to fool the other groups.

18. Draw a picture of what you think happens to crude oil between the time it is in the ground and the time it is put in your car's gasoline tank. Follow up by going to your library to do research. List the things you forgot to include. Revise your original drawing if necessary.

19. Food Energy — What did you eat for breakfast? Make a list. Pick your favorite thing. Now write down what you think happened to the food before it got to the store. Be sure to tell about the energy it takes to make the food as well as the energy it takes to get it to the store.

20. On October 21, 1879, Thomas Alva Edison invented the electric light bulb. Go to the media center and make a list of what resource materials are available on this subject. Select three of these resource materials. After reading through these materials list five facts about Thomas Edison's inventions.

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Section III

Energy Experiments

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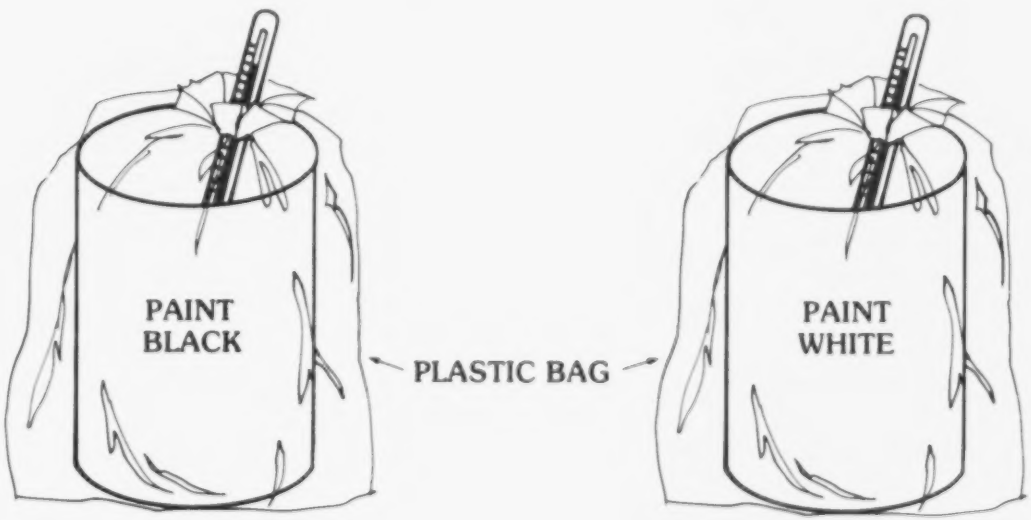
ENERGY EXPERIMENT 1

SOMETHING TO DO

WHICH COLOR MAKES THE BEST SOLAR COLLECTOR? FIND OUT.

You will need:
- 2 orange juice cans
- 2 plastic bags
- 2 thermometers
- *Some black paint (or paper)
- *Some white paint (or paper)
- Any other colors you may wish to try

1. Paint each can (1 black and 1 white).
2. Put thermometer inside each can.
3. Put can inside plastic bag.
4. Put each solar collector in the sun.
5. See which one gets hot first.
6. Try the experiment again but fill the cans with water or sand. How long is the heat retained in the cans?
7. Expand this experiment by using several colors in addition to black and white.



*If paint is used (tempra) it is best to mix it with Elmers glue. Use one part Elmers to three parts paint.

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ENERGY EXPERIMENT 2

SOMETHING TO DO

Grow Your Own Coal Garden

You will need:

¼ cup of uniodized salt
¼ cup of laundry bluing*
¼ cup of ammonia*
6 egg size pieces of coal
Few drops food coloring
Metal or glass dish or pie pan

What to do:

Mix together the salt, water, laundry bluing and ammonia.
Drop red or blue food coloring over your coal.
Pour mixture over the coal.
Wait a few minutes and W-O-W!
You'll have a beautiful garden.

Do you know:

1. What made your coal garden grow?
2. What energy source is used?
3. How else can coal be used?
4. Where can you find coal?

*Laundry bluing and ammonia can be dangerous in the hands of students who are not alerted to the safe use of these liquids. Be sure to warn students about the careful handling of these and any other dangerous materials.

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ENERGY EXPERIMENT 3

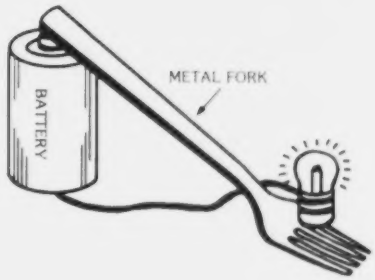
CIRCUIT CONSTRUCTION

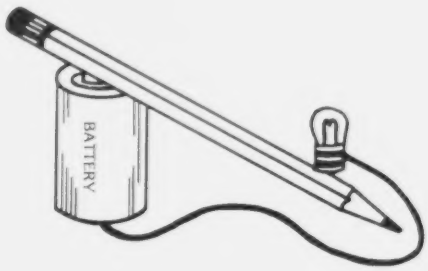
USING THE FOLLOWING EQUIPMENT: Battery, bulb, wire, make a circuit tester. Check to see which items listed below will close the circuit and make the bulb light and which won't.

Place the following items in the proper list: Those that light. Those that don't.

wood pencil	the leg of your chair	tack
plastic spoon	your notebook	chair seat
metal spoon	chalk	your finger
your desk top	crayon	pin

WILL CLOSE THE CIRCUIT	WON'T CLOSE THE CIRCUIT
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____





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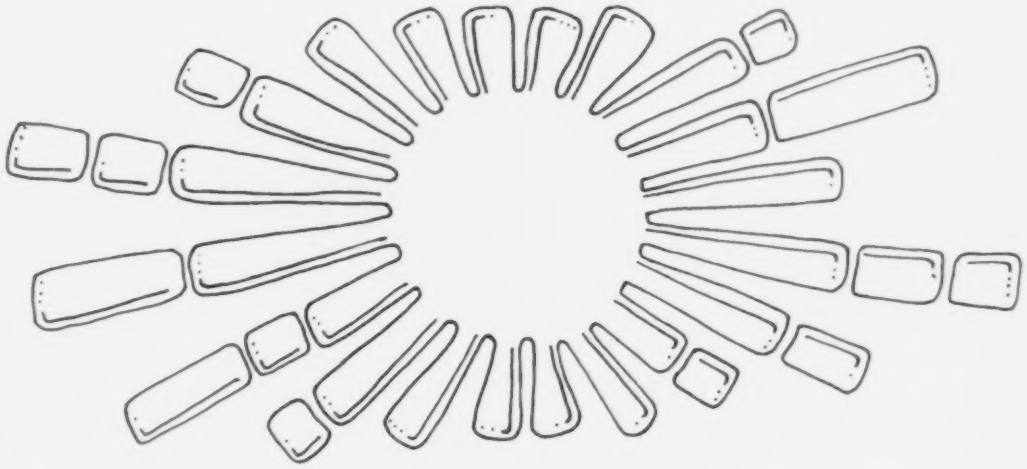
ENERGY EXPERIMENT 4

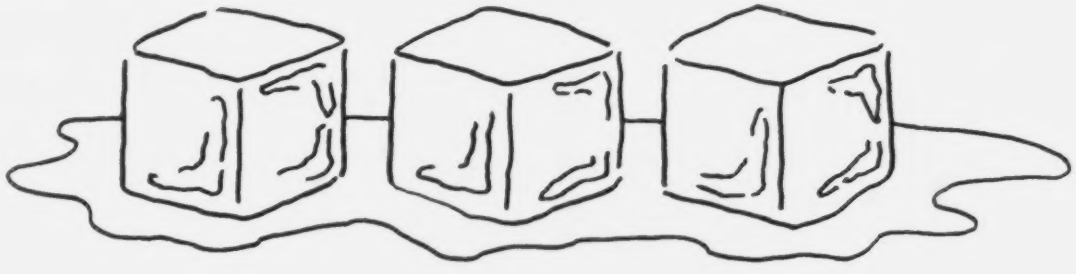
WHICH COLOR IS THE BEST SOLAR INSULATOR?

Pick a sunny day. Place five different colors of 9x12 construction paper on the sidewalk. Put a thermometer on each one—take the temperature after 10 minutes— record the results. Discuss your findings. What conclusions can you make? Try to duplicate the experiment with different colors—how were the results different?



MAKING THE BEST INSULATOR

Invent an insulation system to keep ice or ice cubes frozen in a glass jar with a lid. Measure temperature every 30 minutes to evaluate which invention is most effective. Materials that can be tried are: packing material, cloth, styrofoam, cardboard, newspaper, etc.



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ENERGY EXPERIMENT 5

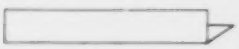
THE WHISTLING WIND

Directions: You will need 1 piece of paper 8 inches long and 1½ inches wide. Scratch paper will work well for this experiment.

Teacher Directions: You may want to "read and do" each step with the group, or have them try to do it by themselves.

Steps:

1. Put the long sides together and crease.

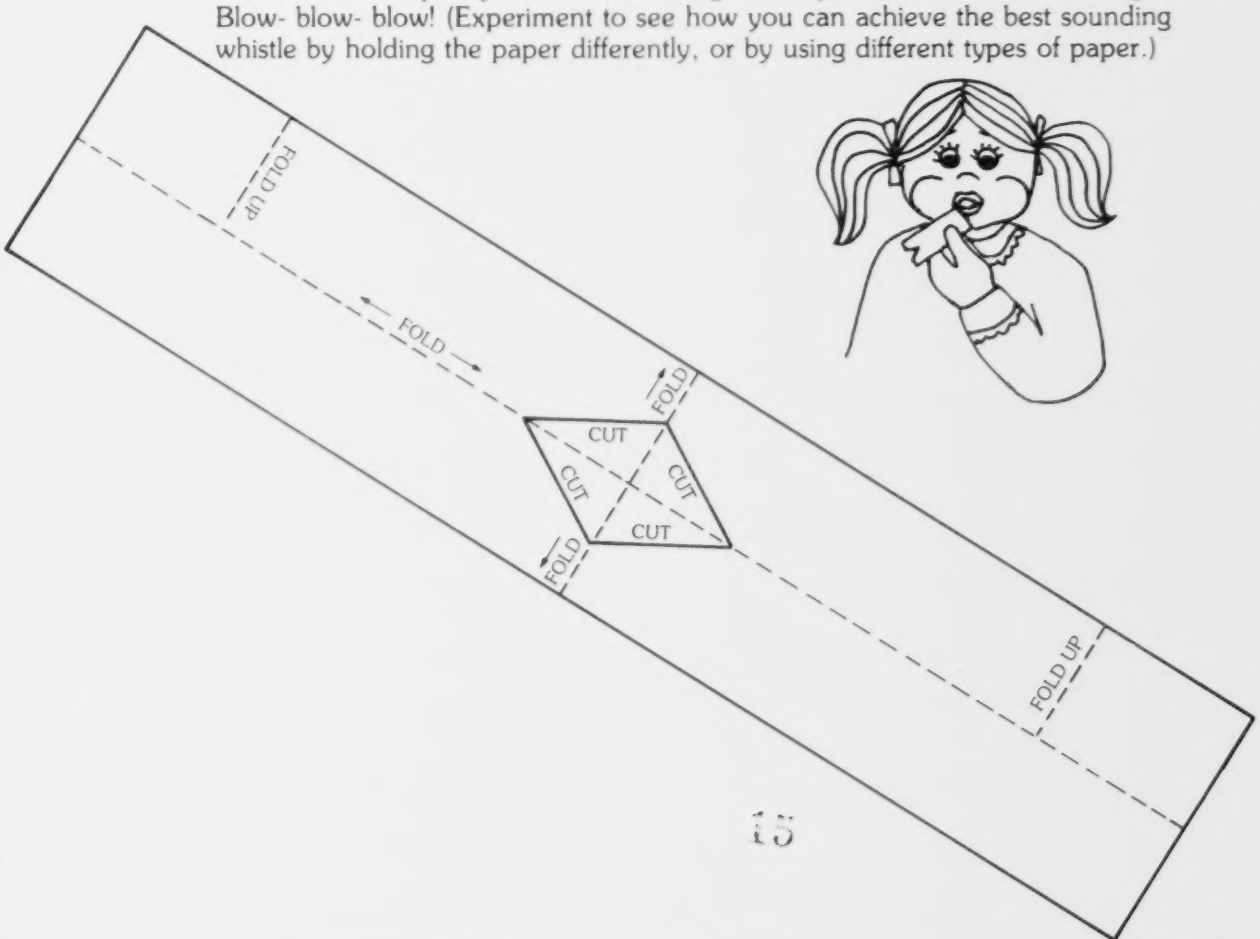


2. Put the short sides together and crease.

3. Cut a V shape out of the fold.

4. Fold each open end up 1 inch.

5. Put the whistle up to your mouth holding it with your thumb and index finger and Blow- blow- blow! (Experiment to see how you can achieve the best sounding whistle by holding the paper differently, or by using different types of paper.)



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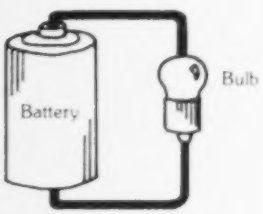
ENERGY EXPERIMENT 6

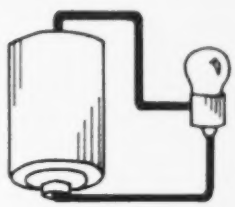
Will the bulb light in the following circuits? Check the right box for each one. Now check to see if you were correct. Use the batteries, bulbs and wires to set up each circuit. Did you check the right box for each picture?

1



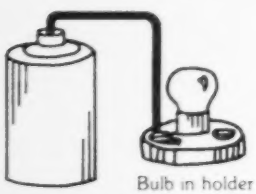
YES ☐
NO ☐

2



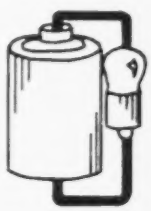
YES ☐
NO ☐

3



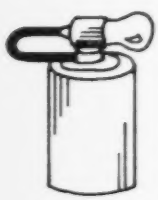
YES ☐
NO ☐

4



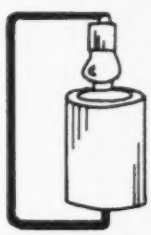
YES ☐
NO ☐

5



YES ☐
NO ☐

6



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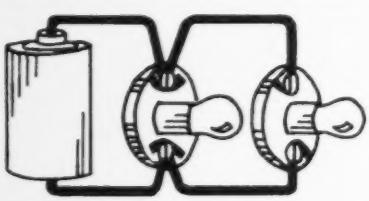
7



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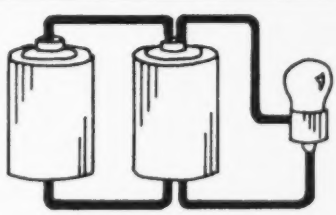

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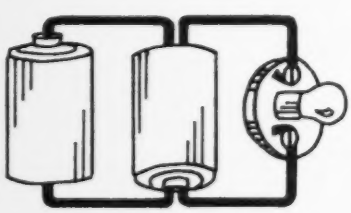
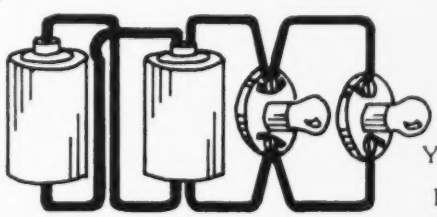
NO ☐

9



YES ☐
NO ☐

10



YES ☐
NO ☐

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ANSWERS

Energy Experiment 2 page 13

1. Energy and mineral deposition
2. The chemical energy of the solution and coal.
3. Burn, to produce heat
4. In the ground

Energy Experiment 3 page 14

Will close the circuit	Will not close the circuit
metal spoon	wood pencil
chair leg (metal)	plastic spoon
tack	desk top
pin	notebook
	chalk
	crayon
	chair seat
	finger

Energy Experiment 6 page 17

1.	No	6.	No
2.	Yes	7.	Yes
3.	No	8.	Yes
4.	No	9.	No
5.	No	10.	No

17

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Section IV

Energy Games

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ENERGY GAME IDEAS

1. How many words can you make from the words *Conserve* and *Energy*? List them on a sheet of paper. You may use some or all of the letters in any order you choose. Use any other energy words you or the students can think of.

2. Make a list of energy users by writing your full name and using each letter as the first letter of an item in your list. Example:

S	A	M	S	L	A	D	E
t	i	i	t	i	u	r	l
o	r	x	e	g	t	y	e
v	p	e	r	h	o	e	v
e	l	r	e	t		r	a
	a		o	s			t
	n						o
	e						r

3. Play hangman with a friend using only energy words. Keep a list of the words you used.

4. Unscramble these energy words. 1) NRYEEG 2) ILO 3) ACLO 4) SGA 5) EETIIYLCRCT 6) UNS 7) MGSO 8) SLROA 9) WSEAT 10) THEA

5. How many words can you make with the letters in CONSERVATION? Can you make ten? Turn your paper over. Draw a picture of yourself saving energy.

6. This game is to be played like hangman. Have the class decide how many barrels of oil each team has to begin the game. Each time a letter is missed draw an X through a barrel of oil. When all the oil is "gone," the class is out of oil. Use the words listed below. Select one student to run the game. See how many of these energy words they get before running out of oil.

Energy	Nuclear	Sun	Petroleum
Solar	Coal	Oil	Windmill
Gasoline	Propane	Conserve	Mass Transit
Jet Plane	Geothermal	Atomic	Hydroelectric

7. Have the class divided into two groups. Select one child as the emcee. He/she selects two children from each group. He arranges two children with their backs to the blackboard. The emcee then writes a word from the list below. The other team members give the teammates (the ones with their backs to the board) one word clues to get them to say the word written on the board. IF the first person gets the word on the board, his or her team gets ten points. If he or she fails the word, it is then worth 9 points. It loses one point with each incorrect answer. The first team to get 25 points wins.

Water	Sun	Dam	Pollution
Save	Gas	Atom	Waste
Conserve	Propane	Coal	Bus
Airplane	Oil	Windmill	
Car	Hydroelectric	Energy	

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ENERGY PUZZLES

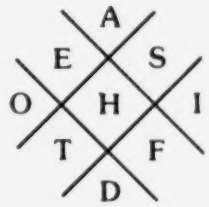
The answers to these puzzles are energy words. Match the shape to the letter and you will find what they are.

O	A	E
C	I	S
L	R	N

1. _____ _____ _____ _____ _____

2. _____ _____ _____

3. _____ _____ _____ _____



4. _____ _____ _____ _____ _____

5. _____ _____ _____ _____

6. _____ _____ _____ _____

Make up your own puzzle and see if a friend can figure out the answers.

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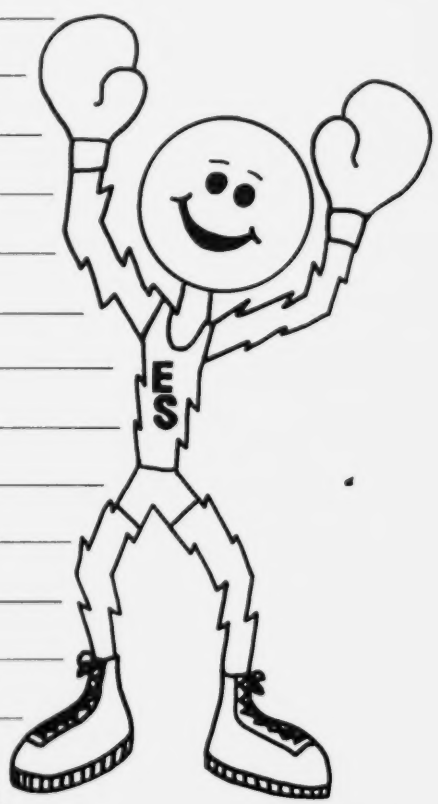
I AM AN ENERGY SAVER

Are you an Energy Saver? Unscramble the following sentences and find out.

1. WATER I WASTE DON'T.
2. I ROOM THE WHEN LEAVE TURN LIGHTS THE I OUT.
3. I'M OFF IT TELEVISION WATCHING THE TURN WHEN NOT I.
4. RIDE USING INSTEAD THE WALK SHORT FOR MY OR TRIPS BICYCLE CAR OF I.
5. THE DON'T I'M LISTENING I ON WHEN RADIO LEAVE NOT STEREO OR.

Rewrite the sentences on the lines below:



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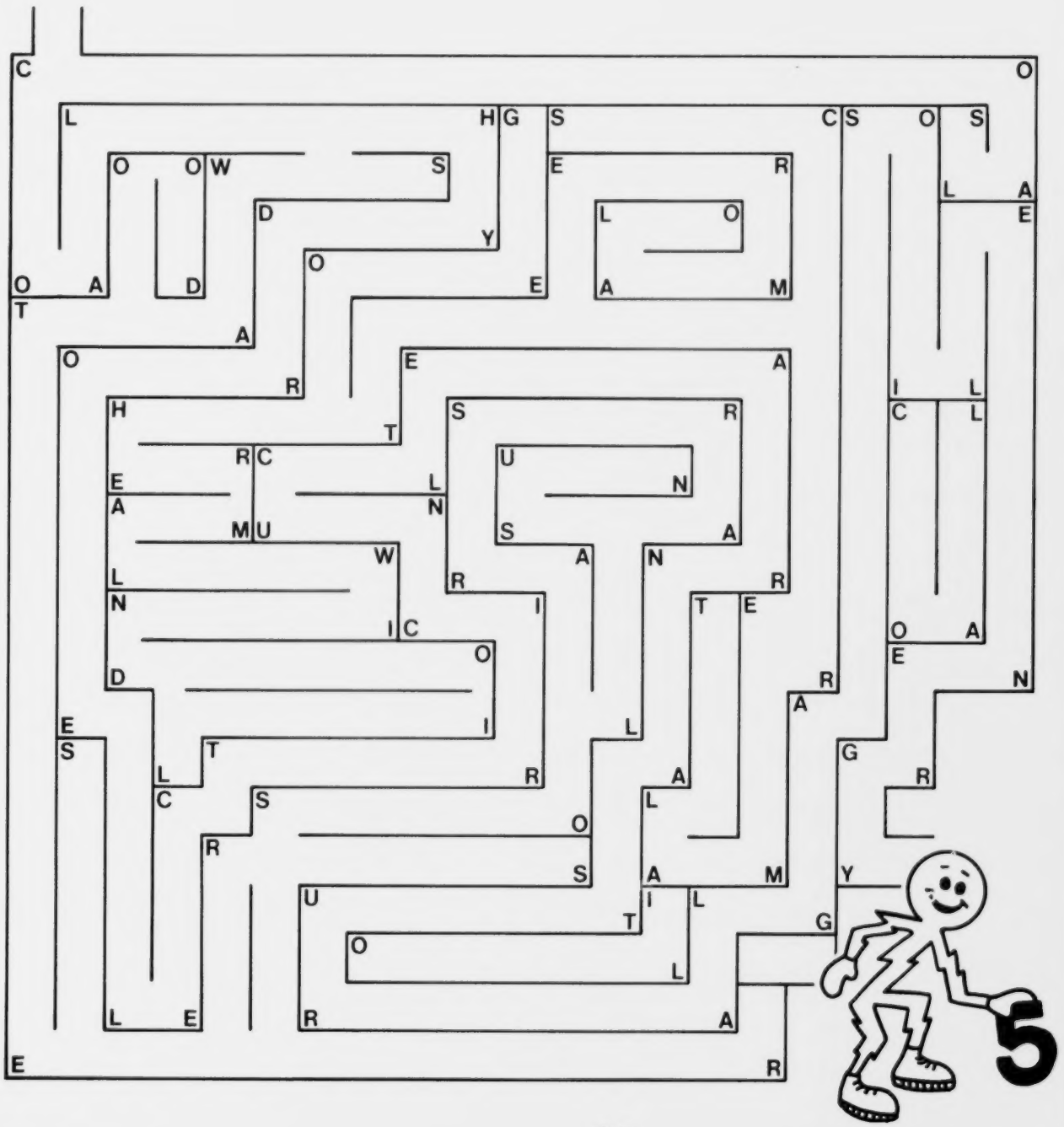
FIVE PRIMARY ENERGY SOURCES

Find your way through the maze and in doing so you will discover the names of the five primary energy sources. As you pass a letter, write it down on the bottom or back of this paper. When you have reached the end, look at the letters and decide what words have been spelled. On the back, draw a picture of each energy source you found.



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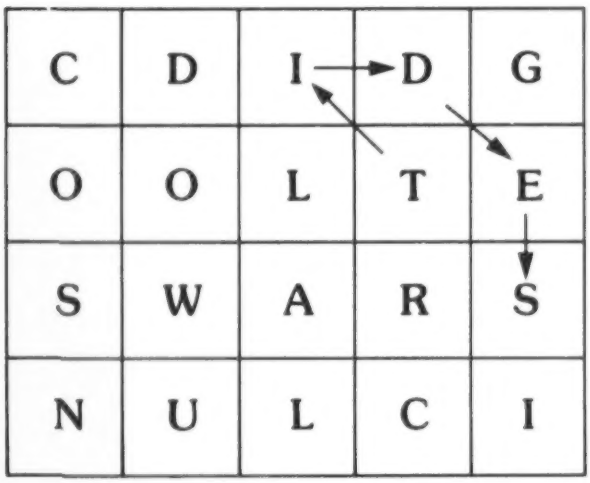
ENERGY SOURCE SEARCH



5 Energy Sources are hidden in this puzzle. In order to find them place your finger in any box and move it from box to box so that an energy source is spelled without lifting your finger. You may not enter the same square twice in one word. You may move up, down, diagonally in any order. One energy source is done for you. That source is "tides." Can you find five?

1.
2.
3.
4.
5.

*Now try making your own puzzle. Use other sources or uses of energy. Share it with a friend.

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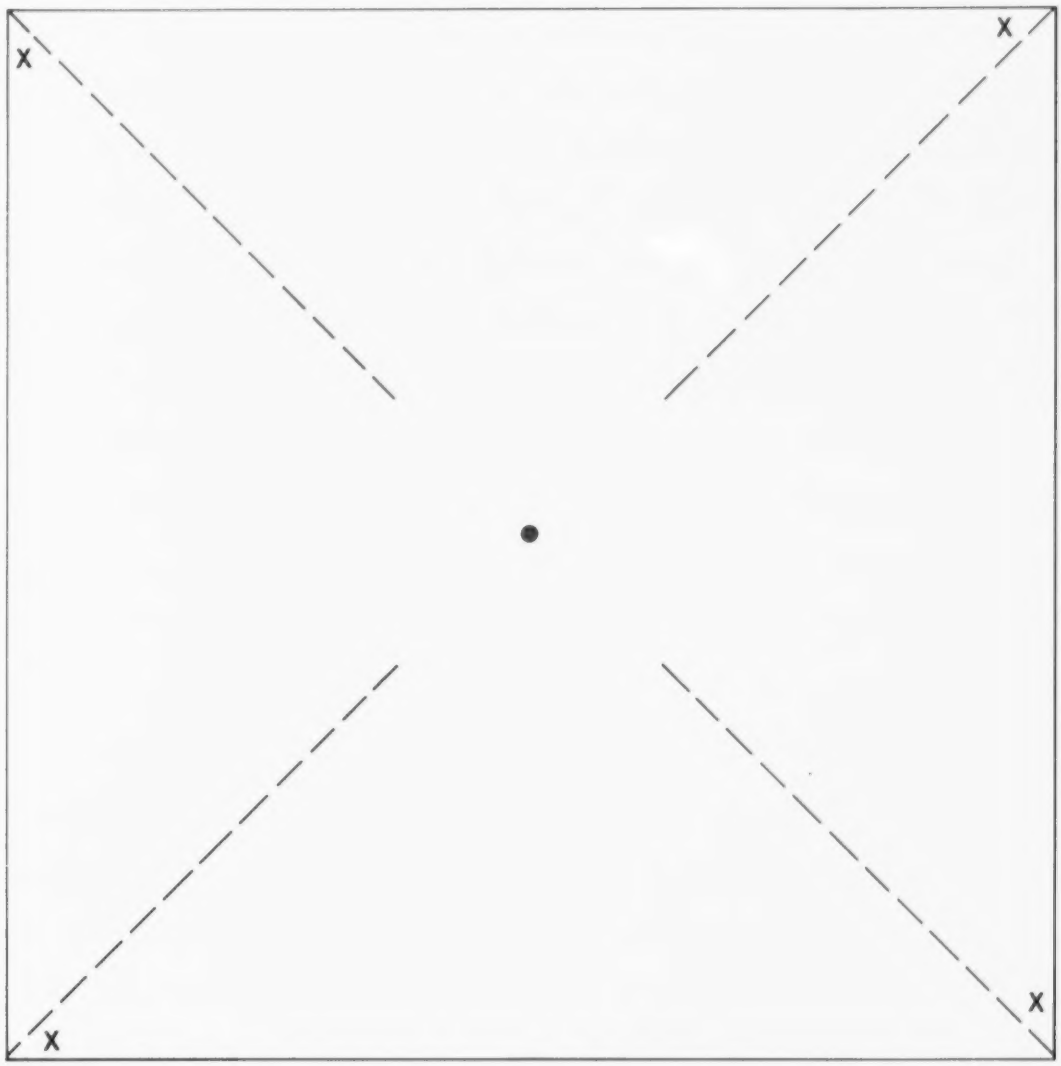
MAKE A WIND WHEEL



Materials: scissors, pins, pencils or straws

1. Cut in at each corner.
2. Take the corners marked X and fold up to center.
3. Pin all corners to the center.
4. Pin on eraser of pencil or plastic straw.

*Teacher: Run this on heavy paper such as oaktag.

Your wind wheel should look like this:

24

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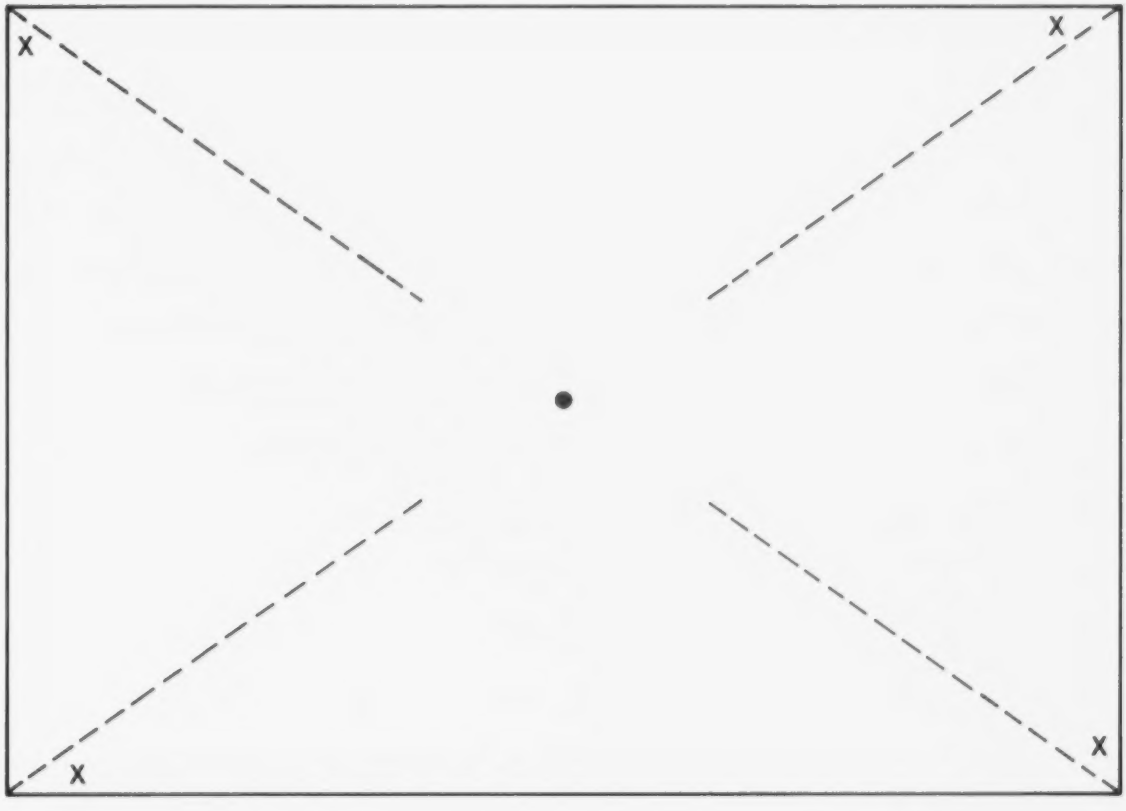
A WIND WHEEL OF ANOTHER SHAPE



Materials: scissors, pins, pencils or straws

1. Make a wind wheel (pin wheel) that is a rectangle, not a square.
2. Make it the same way your made the square wind wheel.
3. Does this wind wheel work the same as the square wind wheel? Why or why not?
4. Design a new wind wheel out of another shape. Predict how well it will work. Try it out.

*Teacher: Run this on heavy paper such as oaktag.

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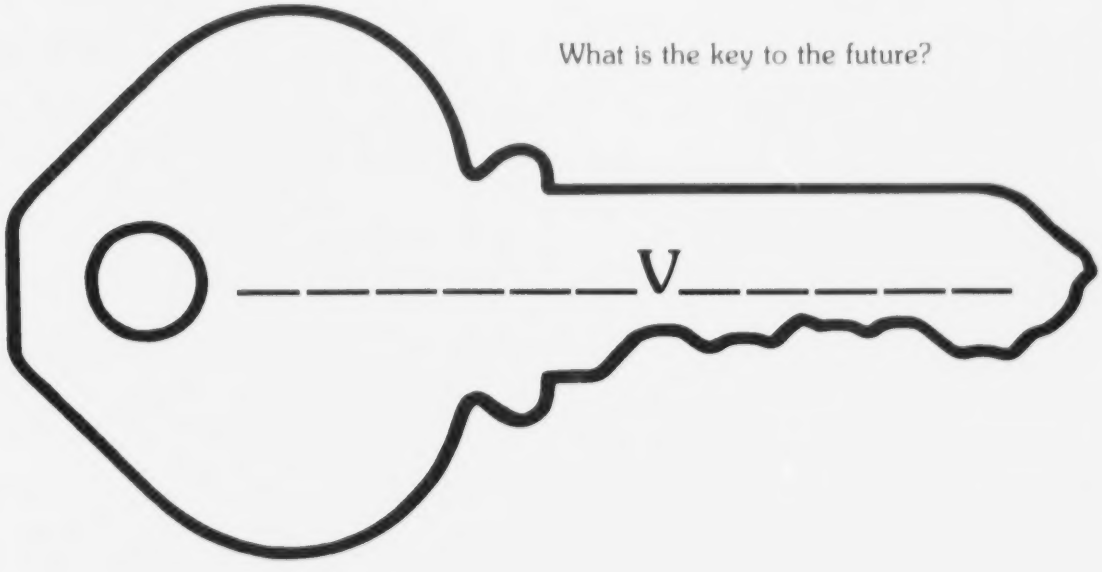
KEY TO THE FUTURE

Complete the following list of energy sources by filling in the missing letter in each word:

ENERGY SOURCES

1. o__l
2. __oal
3. __uclear
4. natur__l gas
5. hydroelec__ric
6. wi__d
7. geothe__mal
8. __olar
9. __il shale
10. wo__d
11. tid__s

Now unscramble the underlined letters to form the answer to the riddle.



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BE AN ENERGY WORD DETECTIVE

Directions: Unscramble the energy words.

1. SGA _____
2. ILO _____
3. NREGYE _____
4. LCAO _____
5. USN _____
6. VERCNSANOITO _____
7. NWDI _____
8. LSORA _____
9. ETWRA _____
10. ODOF _____

Now alphabetize the energy words:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

*On the back, draw a picture showing an example of the third word in your alphabetical word list.

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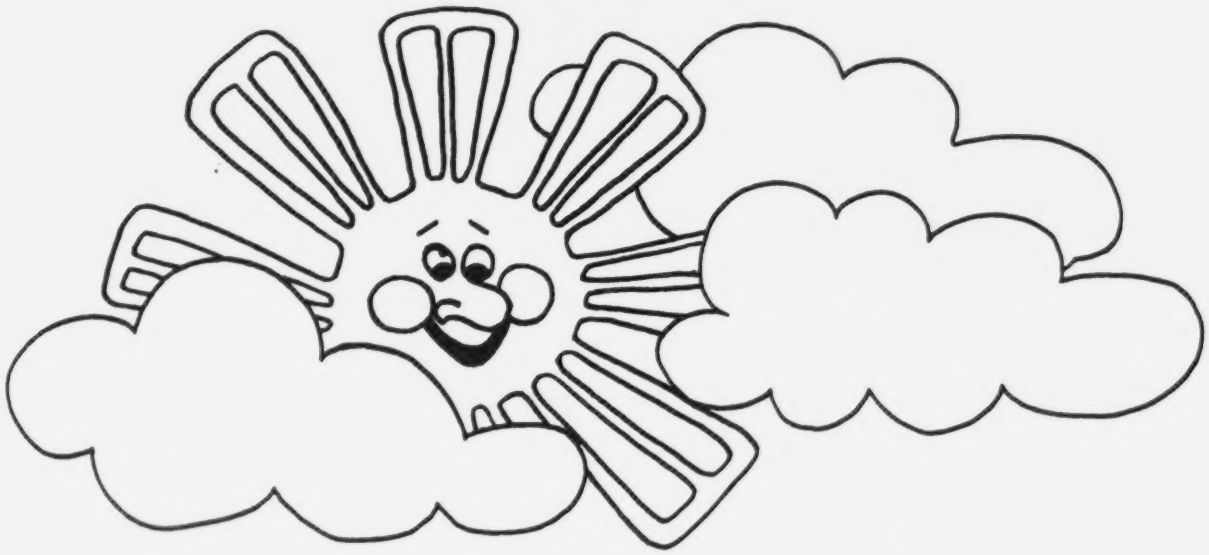
SUN WORDS



A lot of words start with "sun." See if you can find the correct word that goes in the sentence. You can use the word bank.

1. The light of the sun is called sun_ _ _ _ _.
2. The first day of the week is Sun_ _ _.
3. A tall plant with a yellow flower is a sun_ _ _ _ _ _.
4. When your skin is red and hurts you have a sun_ _ _ _.
5. An ice cream treat is a sun_ _ _.
6. When the sun goes down it is sun_ _ _ _.
7. When you go outside for a tan you are taking a sun_ _ _ _.
8. A ray of sunlight is called a sun_ _ _ _.
9. A hat to protect girls from the sun is called a sun_ _ _ _ _ _.
10. A clock that tells time with shadows is a sun_ _ _ _.

WORD BANK

sundial	sunflower	sunshine
sunburn	sundae	sunbow
sundown	sunfish	sundew
Sunday	sunbonnet	sunbath
sunbird	sunbeam	

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REBUS

Directions: On the blank spaces, spell the words made from the picture clues. Add (+) or take away (−) letters to make words that tell how to conserve.

To conserve energy I can:

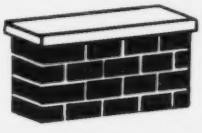
1. _ _ _ _ _ _ _ _ _

C + − ST P + − ST

2. _ _ _ _ _ _ _ _ _ _ _

T + − ANT + [3 / −2]

3. _ _ _ _ _

 − L + K

4. _ _ _ _ _

− RD + − Y

5. SHORTER _ _ _ _ _ _

TR + − SH

*NOW MAKE UP ONE OF YOUR OWN AND SHARE IT WITH A FRIEND.

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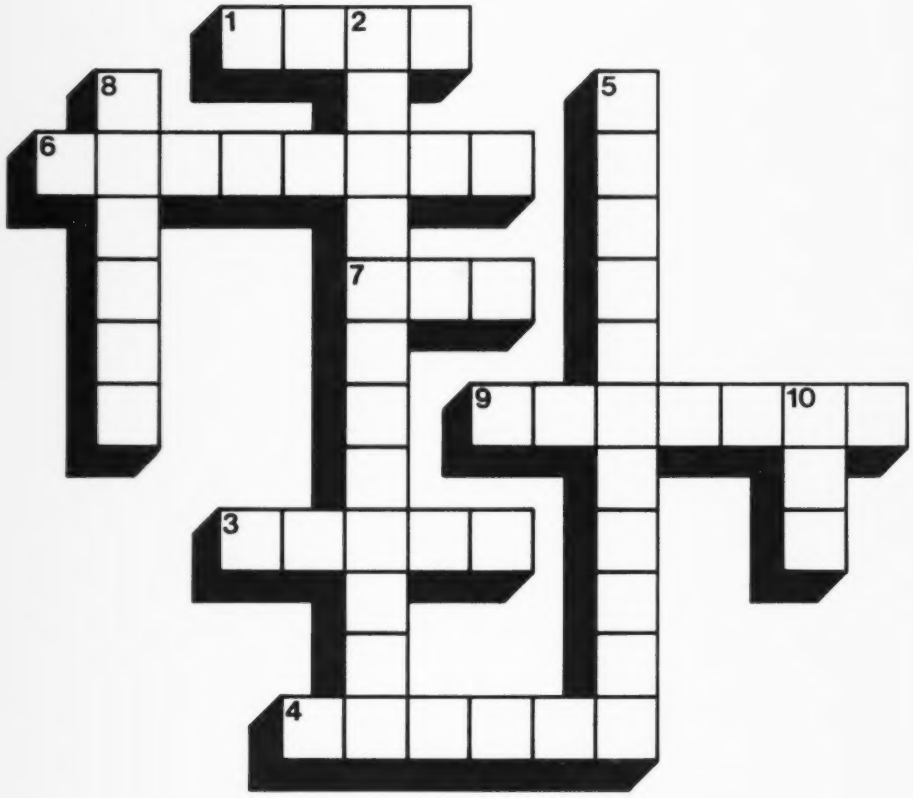
ENERGY CROSSWORD



Across

1. It's black and can be burned. It is _____.
3. Something to drink.
4. The ability to do work.
6. Manage or use wisely.
7. It comes from the ground. It is black.
9. We put it in large bags or cans for the trash collector.

Down

2. Smoke and other things in the air that are not healthy cause _____.
5. What powers lights when we turn on the switch.
8. Print showing ancient plant and animal life.
10. We heat homes with it and put it in our cars.

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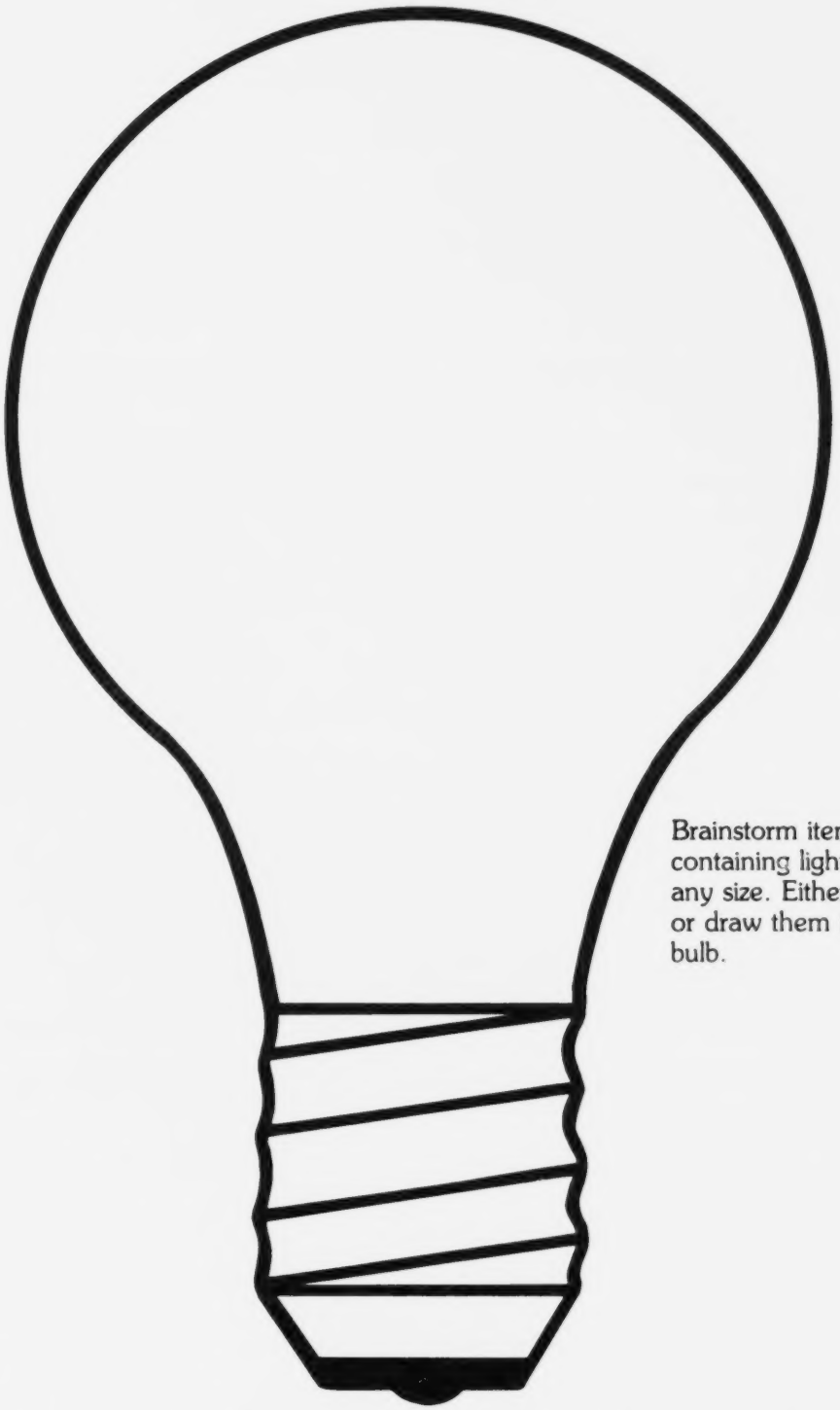
LET THERE BE LIGHT!



Brainstorm items containing light bulbs of any size. Either list them or draw them inside the bulb.

Did you remember the sewing machine and the toaster oven?

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ENERGY PUZZLE

What are these?

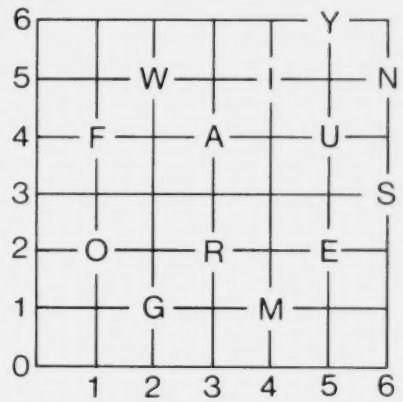
BTU

Calorie

Watt

Volt

Megawatt



Answer the energy question by solving this puzzle. To find the letters, count across first, then up. Example: Go across to two, then up to five. The first letter is "w."

W (2,5) ____ (3,4) ____ (5,6) ____ (6,3) ____ (1,2) ____ (1,4)

____ (4,1) ____ (5,2) ____ (3,4) ____ (6,3) ____ (5,4) ____ (3,2) ____ (4,5) ____ (6,5) ____ (2,1)

____ (5,2) ____ (6,5) ____ (5,2) ____ (3,2) ____ (2,1) ____ (5,6)

Look up the definitions of any of these energy measurement words that you don't know.

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ENERGY MOBILES

Teacher directions: Duplicate the following 2 pages for each student. You may wish to use heavier paper such as tagboard for more durable mobiles.

Directions:

Day 1 — Color all the parts.
Day 2 — Cut out all the parts.

You will need 1 piece of string 36 inches long. Cut 3 pieces of string 6 inches long and tie on holes 1, 2 and 3. Tie the 3 strings together at the top. Cut out different lengths of string. Tie to the pieces. Match the letters and numbers. Tie parts to the mobile circle. For point number 6, you will need to attach a picture of your own that shows another energy source. Try balancing your mobile by changing the length of your string.

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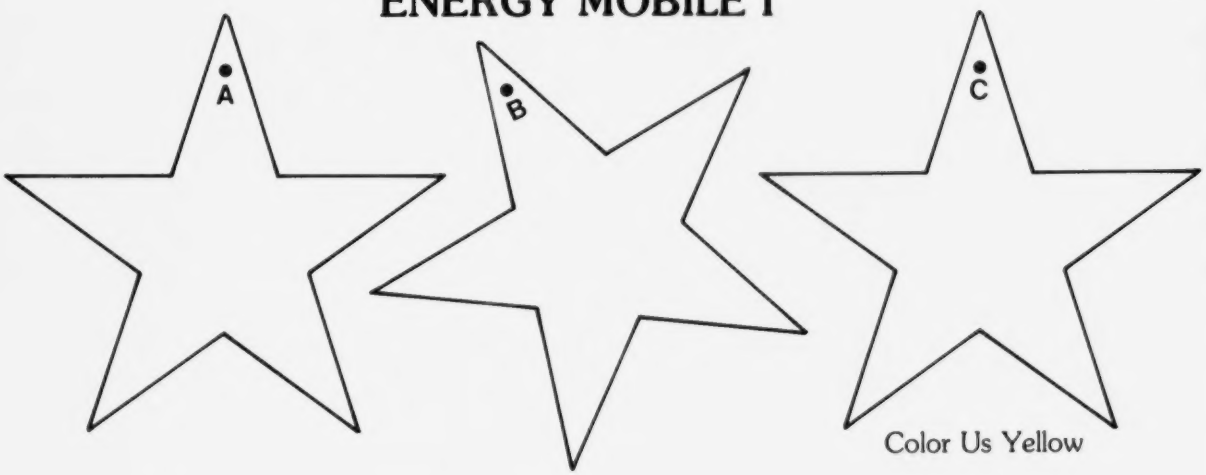
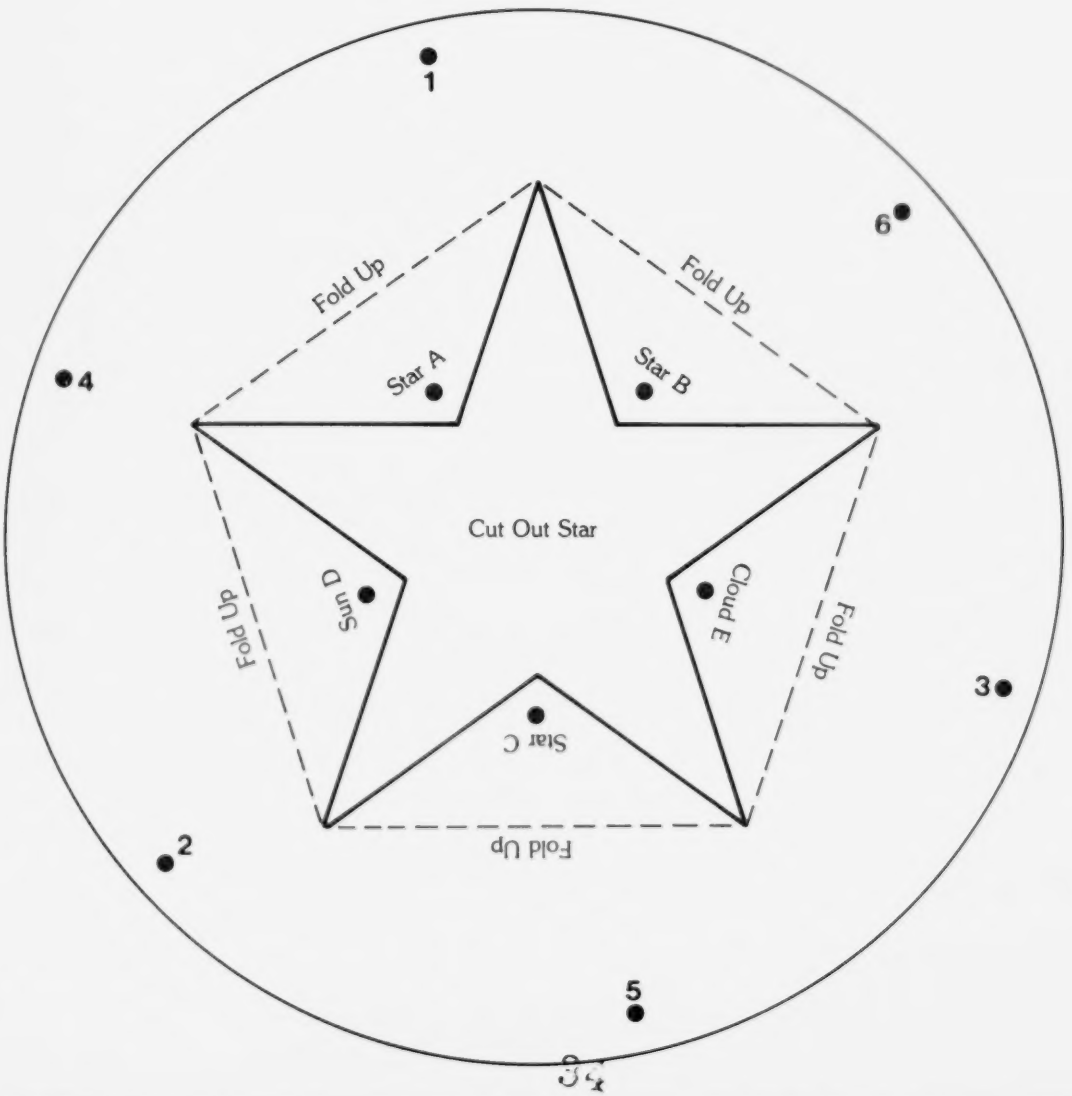
ENERGY MOBILE I



Color Us Yellow



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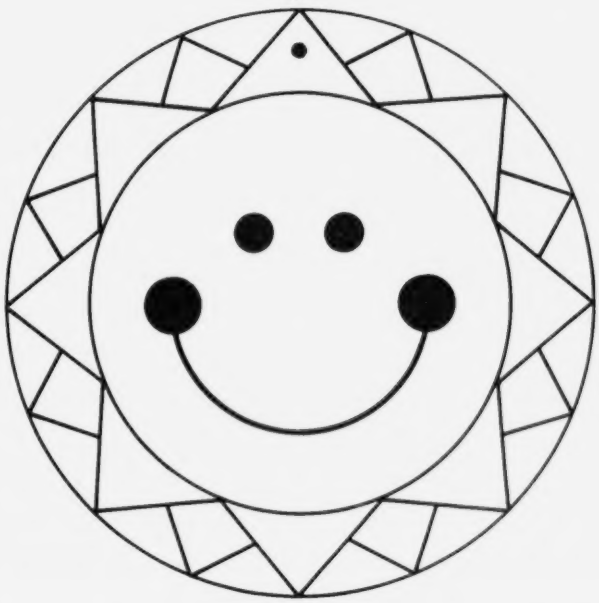
ENERGY MOBILE II

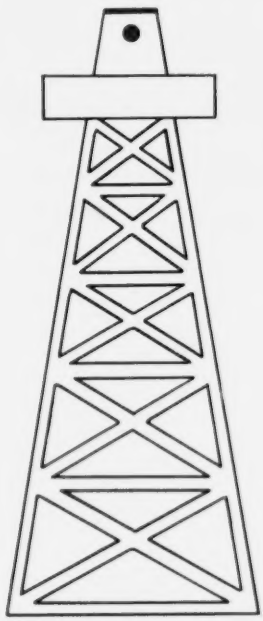
*Note to Teacher: Run copies on tagboard for more durable mobiles.

D



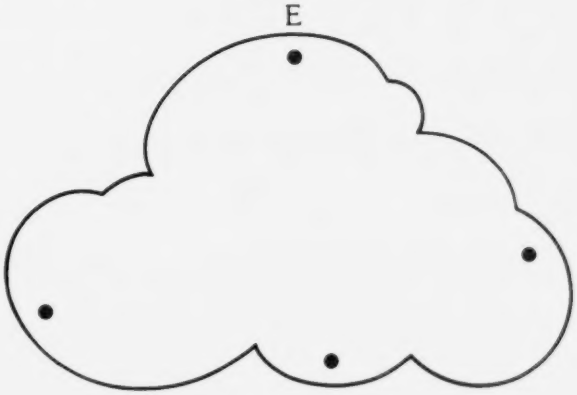
Color Me Yellow

4



Color Me Black

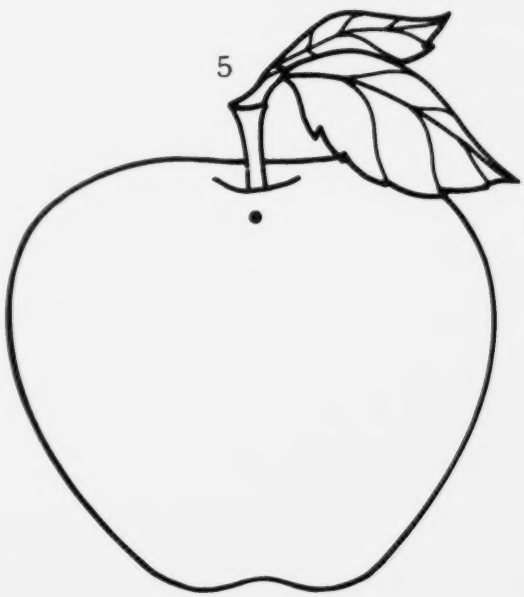
E



Color Me White

Color Us Blue

5



Color Me Red

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CONSERVATION BUTTONS

Design your own energy conservation buttons.

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AN ENERGY TIP FOR YOU

What can you do to save energy? Solve the problems and find out. Write the word for each answer on the line under each problem.

515 = far	863 = not	11 = in	952 = beg
825 = the	7992 = when	992 = car	9 = a
487 = not	835 = for	82 = do	27,980 = going
366 = you	1269 = ride	121 = are	8,008 = very

37 +45 82	253 214 +396	492 176 +284	391 123 +321
Do			
3062 −3053	303 672 +294	333 -322	280 234 +311
381 287 +324	8001 - 9	795 -429	402 -281
632 -145	40,000 -12,020	2321 1131 3514 +1042	764 -249

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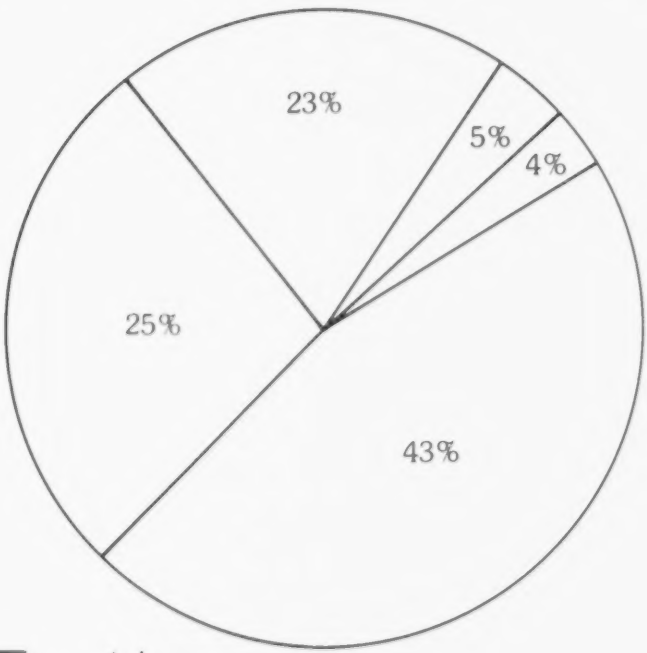
ENERGY

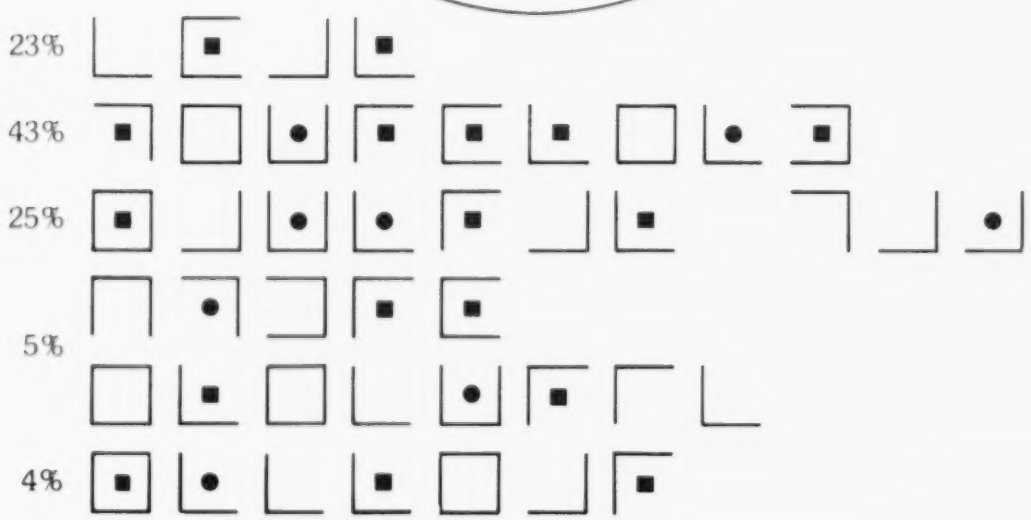
Most of our energy needs are supplied by the five primary energy sources. Which one do we use the most? The least? The graph will show you in a glance. However, to fill in the graph you must translate the information.

A	B	C
D	E	F
G	H	I

J	K	L
M	N	O
P	Q	R

S	T	U
V	W	X
Y	Z	Energy





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ENERGY RIDDLES

What can a canary do that an elephant can't?

_ _ _ _

N = F

NECESSITY-CONVENIENCE-LUXURY

Take the following items you might find around your house. Decide whether they are: Something you would have a hard time living without — a necessity, something that makes life more pleasant or easier — a convenience, or something that is not needed for every day life — a luxury:

Food _____
TV _____
Radio _____
Car _____
Newspaper _____
Furnace _____
House _____
Swimming Pool _____
Airplane _____
Bicycle _____
Candy _____
Dog _____
Cat _____
Warm Coat _____
Refrigerator _____
Air Conditioning _____
Toy Train _____
Basketball _____
Medicine _____
Doll _____
Parents _____
School _____

Compare your answers with a friend. Do you agree? Why or why not?

The list below contains things that use energy to do a job for us. Next to each item list a way the job might be done using less energy:

1. Dishwasher
2. Electric Toothbrush
3. Power Lawn Mower
4. Hot Bath
5. Electric Razor
6. Color Television Set
7. Automobile
8. Air Conditioner
9. Electric Can Opener
10. Electric Calculator

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PHONETIC FUN

Rewrite the following passage. You may use your dictionary. The phonetic spelling may differ slightly depending on the publisher of your dictionary.

Kōl Frŏm thē Mtn Tōo Yo͝or Hōm

Kōl ĭz mīnd ēthēr bī sûr′fĭs ôr ŭn′dĕr-ground mīnĭng. Ĭt ĭz klēnd, krŭshed, ănd sôrt′ĕd. Thĕn ĭt ĭz trănsˊpōrt′ĕd tōō thē pouˆer plant. Thē kōl ĭz bûrnd tōo tûrn wô′tĕr ĭn tōo stēm. Stēm tûrns ā tûrˆbin thăt rō′tāts koils ŏv wīr ĭn ā jĕnˊĕr-ā-tor thrōō ā măg-nĕt′ĭk fēld. Thĭs prō-dūsˊēz ēlĕk-trĭs-y-ty. Ĭt ĭz thĕn trănsˊ-pōrt-ed ŏn wīrs tōo yo͝or hōm.

41

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CONSERVATION RHYMES WITH CONRAD

Conrad Conservation was smart and used his head, "Conserve! Conserve!" is what he said.

1. If you don't, you'll have no _____ for your yard. . .Keeping greenery alive will be really _____.

2. If you don't, you'll have no _____ to run your car. . .Without it, you won't get very _____.

3. If you don't, your fireplace will have no _____. And a _____ built of cardboard wouldn't be too good.

(The next two 'If's' belong to you, 'cause Conrad says that you're a 'smartie,' too.)

4. If _____

_____

_____

_____

_____

5. If _____

_____

_____

_____

_____

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POLLUTION SOLUTION

Pollution Solution requires you to think of words that rhyme. The definition of the two words is given. Both rhyming words have the same number of syllables. When you have figured them out, draw an ad which would illustrate the energy idea to your classmate. You will need a sheet of paper for each ad. Use scrap paper and conserve.

1. sw_ _ _ sm_ _ _

Cleaner air will come from better use of energy! A great odor is a _____

2. d_ _ _ _ _ tr_ _ _ _ _

We need to conserve energy. Twice as much pain is _____

3. c_ _ _ sch_ _ _

An energy-saving classroom is a _____

4. f_ _ s_ _

(A renewable energy source) enjoyable solar rays _____

5. bi_ _ _ _ li_ _ _ _

Recycle for energy conservation! Sad scattered paper is _____

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ADAPTATIONS

In history, as conditions changed, animals have changed their shape and form to adapt to the new conditions. For example, when conditions changed, the lung fish adapted ways to come out of the water and survive for a time.

Petroleum is running out. We use petroleum for almost every part of our life. Imagine humans physically beginning to change to meet this loss. In time, what do you think these petroleum-less people might look like?

On the bottom of this paper, draw their picture. As you draw keep these things in mind:

1. Without petroleum most of the heat would disappear from cool climates and air conditioning from hot climates.
2. Most of our forms of transportation require petroleum.
3. A lot of our clothing comes from petroleum (synthetic fabrics, for example). How would people stay warm?
4. Electricity is often generated by petroleum. Without it *no TV*. What would these new people do for entertainment?
5. Many medicines are made in part from petroleum.
6. Bug killers are often based in part on petroleum.

On your picture explain how each part of your new "improved" person changed to live without petroleum.

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ANSWERS

Energy Game Ideas page 20

4)

1.	energy	6.	sun
2.	oil	7.	smog
3.	coal	8.	solar
4.	gas	9.	waste
5.	electricity	10.	heat

5) tone, nose, coat, soon, note, raise, set, sat, cast, to, too

Energy Puzzles page 21

1.	ocean	4.	tides
2.	air	5.	heat
3.	soil	6.	food

I Am An Energy Saver page 22

1. I do not waste water.
2. I turn out the lights when I leave the room.
3. I turn off the television when I am not watching it.
4. I walk or ride my bicycle instead of using the car for short trips.
5. I do not leave the radio or stereo on when I am not listening.

Five Primary Energy Sources page 23

1.	coal	4.	natural gas
2.	hydroelectric	5.	oil
3.	nuclear	6.	energy

Key To The Future page 27

1.	i — **oi**l	6.	n — wi**n**d
2.	c — **c**oal	7.	r — geothe**r**mal
3.	n — **n**uclear	8.	s — **s**olar
4.	a — n**a**tural gas	9.	o — **o**il shale
5.	t — hydroelec**t**ric	10.	o — w**oo**d
		11.	e — tid**e**s

KEY TO FUTURE — CONSERVATION

Be An Energy Word Detective page 28

Unscrambled		Alphabetized	
1.	gas	1.	coal
2.	oil	2.	conservation
3.	energy	3.	energy
4.	coal	4.	food
5.	sun	5.	gas
6.	conservation	6.	oil
7.	wind	7.	solar
8.	solar	8.	sun
9.	water	9.	water
10.	food	10.	wind

Sun Words page 29

1.	shine	6.	down
2.	day	7.	bath
3.	flower	8.	beam
4.	burn	9.	bonnet
5.	due	10.	dial

Rebus page 30

1. car pool
2. telephone
3. walk
4. bike
5. shorter trips

Energy Crossword page 31

Across		Down	
1.	coal	2.	pollution
3.	water	5.	electricity
4.	energy	8.	fossil
6.	conserve	10.	gas
7.	oil		
9.	garbage		

Energy Puzzle page 33

Ways of measuring energy

An Energy Tip For You page 38

82	863	952	835	9	1269
11	825	992	7992	366	121
487	27980	8008	515		

Do not beg for a ride in the car when you are not going very far.

Energy page 39

23%	coal
43%	petroleum
25%	natural gas
5%	hydroelectric
4%	nuclear

Energy Riddles page 40

Take a bath in a saucer.

A buggy ride

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ANSWERS

Necessity — Convenience — Luxury page 41
(Answers may vary)

food — necessity
tv — convenience
radio — convenience
car — convenience
newspaper — convenience
furnace — necessity
house — necessity
swimming pool — luxury
airplane — luxury
bicycle — convenience
candy — luxury
dog — luxury
cat — luxury
warm coat — necessity
refrigerator — necessity
air conditioning — convenience
toy train — luxury
basketball — luxury
medicine — necessity
doll — luxury
parents — necessity
school — necessity

1. Wash dishes by hand
2. Manual toothbrush
3. Push mower
4. Warm shower
5. Razor blade
6. Listen to the radio

Phonetic Fun page 42

Coal is mined either by surface or underground mining. It is cleaned, crushed, and sorted. Then it is transported to the power plant. The coal is burned to turn water into steam. Steam turns a turbine that rotates coils of wire in a generator through a magnetic field. This produces electricity. It is then transported on wire to your home.

Conservation Rhymes with Conrad page 43

1. water hard
2. gas far
3. wood fire

Pollution Solution page 44

1. swell smell
2. double trouble
3. cool school
4. fun sun
5. better letter

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